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Short Communication

Antimicrobial activity of *Mucuna pruriens* on selected bacteria

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The investigation is aimed to carry out the antimicrobial activities of the methanol extract of *Mucuna pruriens* leaves. The antimicrobial activity of the extract was determined by the agar well diffusion method against various gram positive, gram negative and spore forming microorganisms and fungi. The methanol extract of *M. pruriens* showed broad-spectrum antimicrobial activity against all the tested microorganisms except *Candida albicans*. The results obtained in the study shows that *M. pruriens* extract can be a potential source of natural antimicrobial agent.

Key words: Agar diffusion, antimicrobial activity, *Mucuna pruriens*.

INTRODUCTION

Plant based antimicrobials represent a vast untapped source for medicines and further exploration of plant antimicrobials needs to occur. Antimicrobials of plant origin have enormous therapeutic potential. They are effective in the treatment of infectious diseases while simultaneously mitigating many of the side effects that are often associated with synthetic antimicrobials (Iwu et al., 1999).

Mucuna pruriens belongs to the family Fabaceae. Some of the common names include: Cow itch, Common Cow-itch, Konch, velvet bean, mucuna, nescafé, pó de mico, fava- coceira, cabeca-de-frade, cowage, cowhage, bengal bean, Mauritius bean, itchy bean, krame, picapica, chiporro, and buffalo bean. The roots are bitter, sweet thermogenic emollient, stimulant, purgative, aphrodisiac and diuretic. The leaves are aphrodisiac. The seeds are astringent, laxative, anthelmentic, alexipharmic and tonic (Taylor, 2005). A clinical study confirmed the efficacy of the seeds in the management of Parkinson's disease by virtue of their L-DOPA content (Manyam et al., 1995; Bell et al., 1971). *M. pruriens* has been shown to increase testosterone levels (Amin et al., 1996), leading to deposition of protein in the muscles and increased muscle mass and strength (Bhasin et al., 1996). Much work has not been done on the leaf, hence the main reason of this investigation.

M. pruriens itch-producing property is attributed to the trichomes (hair) present on the pods. It has been established that this unique property is accounted by the presence of 5-hydroxy tryptamine (5-HT) in the hair (Armstrong et al., 1953). Some reports show that antihistaminics afford protection against the itch (Broadbent, 1953). In this work, we tested the antimicrobial activity (against gram positive, gram negative and spore forming bacteria and also fungi) of the methanol extract of the leaf of *M. pruriens*

MATERIALS AND METHOD

The leaf of *M. pruriens* was collected from bushes around the Obafemi Awolowo University Ile-Ife Osun State, Nigeria. The leaf was identified in the herbarium of the Faculty of Pharmacy of the Obafemi Awolowo University Ile-Ife Osun State, Nigeria. The leaf was extracted using methanol.

Microorganisms (*Staphylococcus aureus NCTC* 6571, *Escherichia coli* NCTC 10418, *Bacillus subtilis NCTC* 8263, *Pseudomonas aeruginosa* ATCC 10145) were obtained from the stock culture of Department of Pharmaceutics, Obafemi Awolowo University Ile-Ife Osun State, Nigeria.

Antimicrobial activity was determined by agar-well diffusion method (Kavanagh, 1963) and minimum inhibitory concentrations were determined (Russell and Furr, 1977).

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Table 1. Antimicrobial activity of *Mucuna pruriens* leaf extract

Zones of inhibition (mm)[3]								
	***Mucuna pruriens* (mg/ml)**						**MIC**	**Streptomycin**
Microorganism	**240**	**160**	**80**	**40**	**20**	**5**	**(mg/m)**	**(1 mg/ml)**
Staph. aureus NCTC	45	15	12	0	0	0	80	21
E. coli NCTC 10418	28	13	0	0	0	0	160	24
B. *subtilis NCTC* 8263	38	14	12	11	0	0	40	26
P.aeruginosa ATCC 10145	30	15	11	0	0	0	80	0
Proteus mirabilis NCIB 67	34	18	17	14	0	0	40	22
Candida albicans	0	0	0	0	0	0	-	0

RESULTS AND DISCUSSION

Table 1 above indicates that the extract inhibited the growth of all the tested microorganisms with the exception of *Candida albicans* to various degrees. The extract showed strong antibacterial activity against *S. aureus NCTC* 6571, *E. coli* NCTC 10418, *B. subtilis NCTC* 8263, *Proteus mirabilis* NCIB 67, *P. aeruginosa* ATCC 10145 (which is most times resistant to most antimicrobial agents). Their activity at 240 mg/ml is comparable to that of the control used (streptomycin at a concentration of mg/ml).*Candida albicans* was not sensitive to the extract.

On the basis of the result obtained in this present investigation, we conclude that the methanol extract of *M. pruriens* leaves had significant *in vitro* antimicrobial activity. The obtained results may provide a support to some uses of the plant in traditional medicine. Further studies are recommended to isolate the active components responsible for the antimicrobial activity.

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